

ABSTRACT

A fuel cell assembly has a fuel cell stack (1) provided with a polymer electrolyte membrane (2), an air electrode (4) and a fuel electrode (3); an air supply device (19) for supplying air; a fuel gas supply device (20) for supplying fuel gas, and a humidity regulation module (5) allowing movement of water from a humid air passage (6) to a dry air passage (7). The air electrode (4) is divided into an upstream air electrode (4a) and a downstream air electrode (4b). The air supplied from the air supply device (19) is supplied to the upstream air electrode (4a) after passing through the dry air passage (7). The air discharged from the upstream air electrode (4a) is supplied to the downstream air electrode (4b) after passing through the humid air passage (6).